



Community Choice Aggregation Update and Risk Analysis

Prepared For Marin County

Background



- **The Community Choice Aggregation law, AB 117 enacted in 2002, provides cities and counties the authority to aggregate electric loads of customers within their boundaries for purposes of procuring wholesale electricity.**
- **The law was passed in the wake of the energy crisis which had revealed significant flaws in the way that utilities procured electricity for their customers:**
 - Reliance on volatile, short-term markets
 - Inadequate electricity supplies and blackouts
 - Increasing dependence on natural gas fueled generation
- **Aggregation is voluntary and gives customers a means to control their energy costs through their participation in the program.**
- **State energy policy encourages formation of CCA programs by local governments.**

CA Municipalities That Are Investigating CCA



Actively Developing Plans	Actively Considering	Inactive
San Francisco	Marin County	Vallejo
Oakland	Beverly Hills	Los Angeles County
Berkeley	West Hollywood	San Diego County
Emeryville	Pleasanton	Richmond
Chula Vista		San Marcos
Fresno and 12 area cities		
Kings County		

Marin County's CCA Investigation



- **The County began its investigation of CCA in 2004 as part of a pilot project sponsored by the California Energy Commission and the US Department of Energy.**
- **The County along with 12 other project participants established a goal of significantly increasing the utilization of renewable resources used to serve local customers.**
- **A 2005 feasibility study conducted for the County examined the costs of providing electric service to customers within Marin County relative to the projected rates charged by PG&E.**
- **The initial study included pro forma financial projections for five different resource plans and seven sensitivity cases to provide a range of expected rate impacts relative to PG&E's rates.**

Potential Customer Base For Marin County

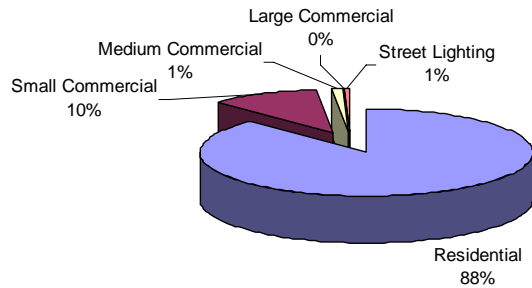


Table 1: Potential Retail Sales (pre opt-out, excludes direct access customers)

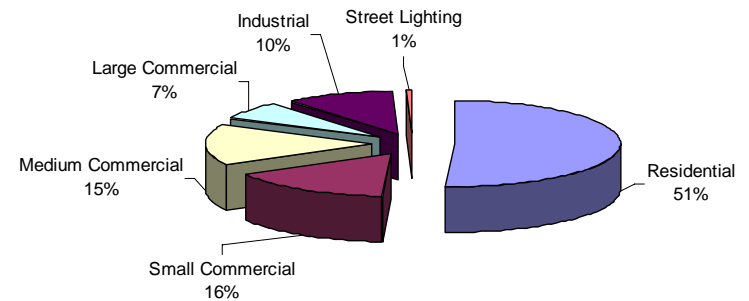
	Accounts	Projected Energy (MWh)	Demand (MW)
Resident.	111,498	720,461	192
Small Commcl.	13,246	231,807	52
Medium Commcl.	1,240	214,304	50
Large Commcl.	200	96,981	15
Indust.	26	148,330	23
Street Lights	644	8,268	2
Total	126,854	1,420,151	278*

* Coincident peak

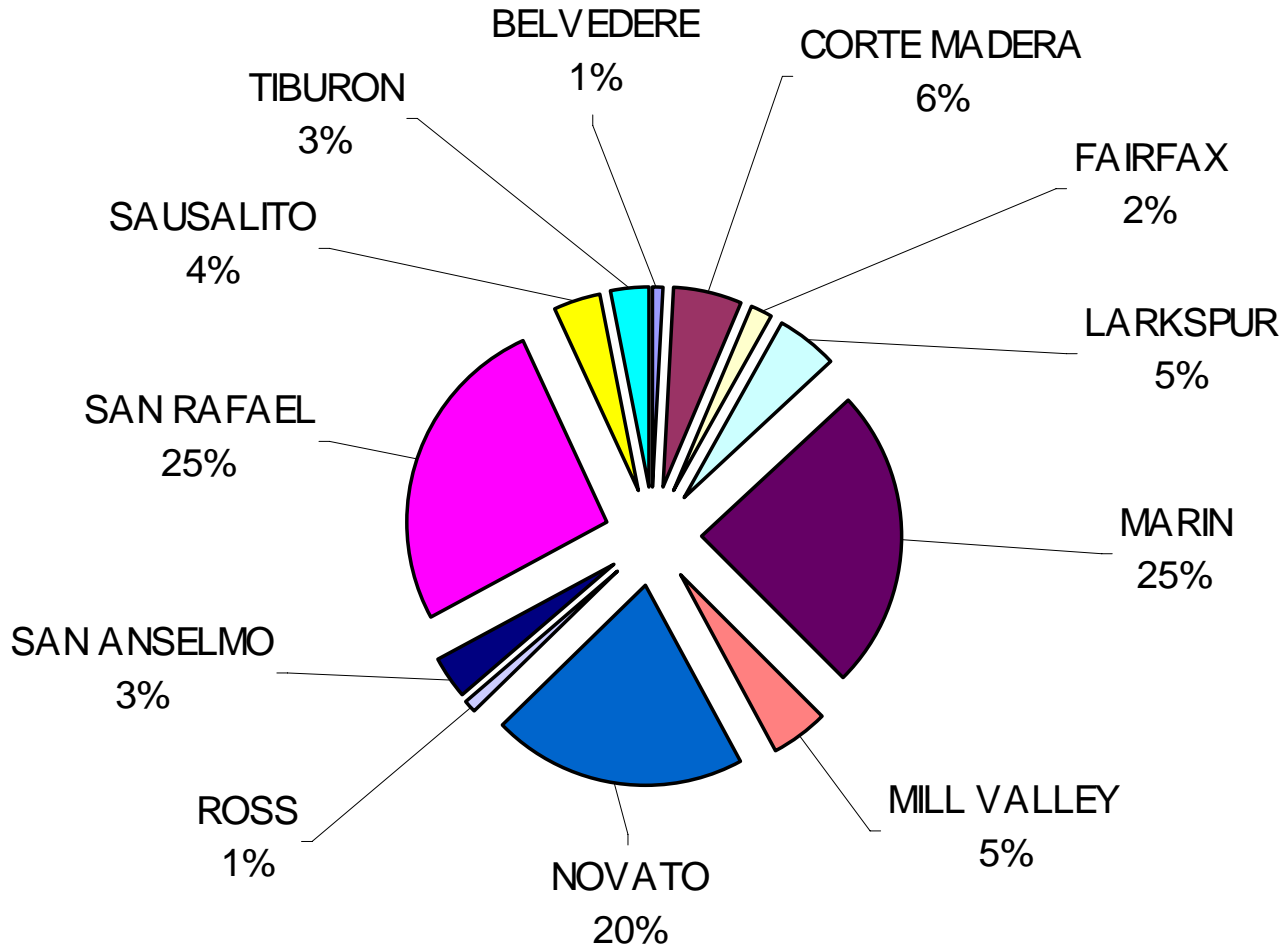
Potential Customers



Potential Sales By Customer Class



County of Marin Community Energy Usage



Phase 1 Study Results Regarding Renewable Energy



- **Marin could reduce use of fossil fuels and increase use of renewable energy with little impact on electricity rates.**
 - Increasing the renewable energy component from the legal minimum 20% of the overall mix to 51% has a very slight impact on program costs (1% to 2% customer bill impact)
- **Result was surprising, considering that the average cost for purchasing renewable energy was estimated to be 40% more expensive than conventional market clearing prices (6.2 cents per kWh vs. 4.4 cents per kWh).**
 - The renewable goal would be gradually phased in and fully attained by 2017
 - Conventional market clearing prices were expected to increase at a faster rate than renewable energy due to escalating natural gas prices, with eventual convergence around 2018
 - The premium is a relatively small portion of overall electricity bills, which includes other utility charges for transmission, distribution, public goods, etc.
- **Since the Phase 1 study was completed, conventional market clearing prices have nearly doubled.**
 - At current market prices there has been general convergence between the costs of renewable energy (particularly wind) and gas-fired generation.

Renewable Energy Cost Impact on Program Rates in The Near Term



- **Using the 1.8 cents per kWh renewable premium from the Phase 1 study, a “rule of thumb” can be derived for evaluating the customer rate impact of purchasing more renewable energy in the near term:**
 - For each additional 1% of the energy mix purchased from renewable resources, there would be a 0.1 % overall rate impact (*i.e.*, 1.8 cents per kWh X 1%/13.8 cents per kWh rate)
- **Note that at current market prices, the renewable premium would be significantly less than the 1.8 cents per kWh used in the example, and the cost impact of increasing renewable energy would be smaller than shown here.**
- **Also, this example does not include the cost reductions that could be achieved in the longer term if the Marin CCA produced power from its own resources.**

CCA Generation Opportunities



- **The Phase 1 study showed that publicly financed generation can provide a means to reduce program rates below PG&E's over the long term, while also increasing renewable energy utilization.**
- **Enables County to obtain renewable energy at low cost for a portion of its energy requirements:**
 - No profits
 - No taxes
 - Tax-exempt financing
- **Current costs for publicly owned wind energy (shaped and firmed) are estimated to range from 5.2 to 6.2 cents per kWh, which is less than the current cost of gas-fired generation.**
- **Projects could be owned and financed directly by the JPA or purchased from another public agency such as NCPA or SMUD.**
- **Anticipated four to five year lead time for generation development, although it may be possible to shorten lead time by participating in resources already under development.**

During Early Years, County Would Purchase Power From One or More Third Parties



- **County would procure power through contracts with third parties until resources can be obtained; would later use power purchase contracts to supplement its generation resources.**
- **County could obtain “full requirements” service with price certainty from private energy companies or another public agency, minimizing operational role of County or JPA.**
- **Potential exists for somewhat higher costs during this initial period.**
- **Additional analysis has been done to quantify the probability of higher costs during the first few years of the program.**

May 2006 Updated Analysis Incorporates Comments From the Independent Review of the Phase 1 Study

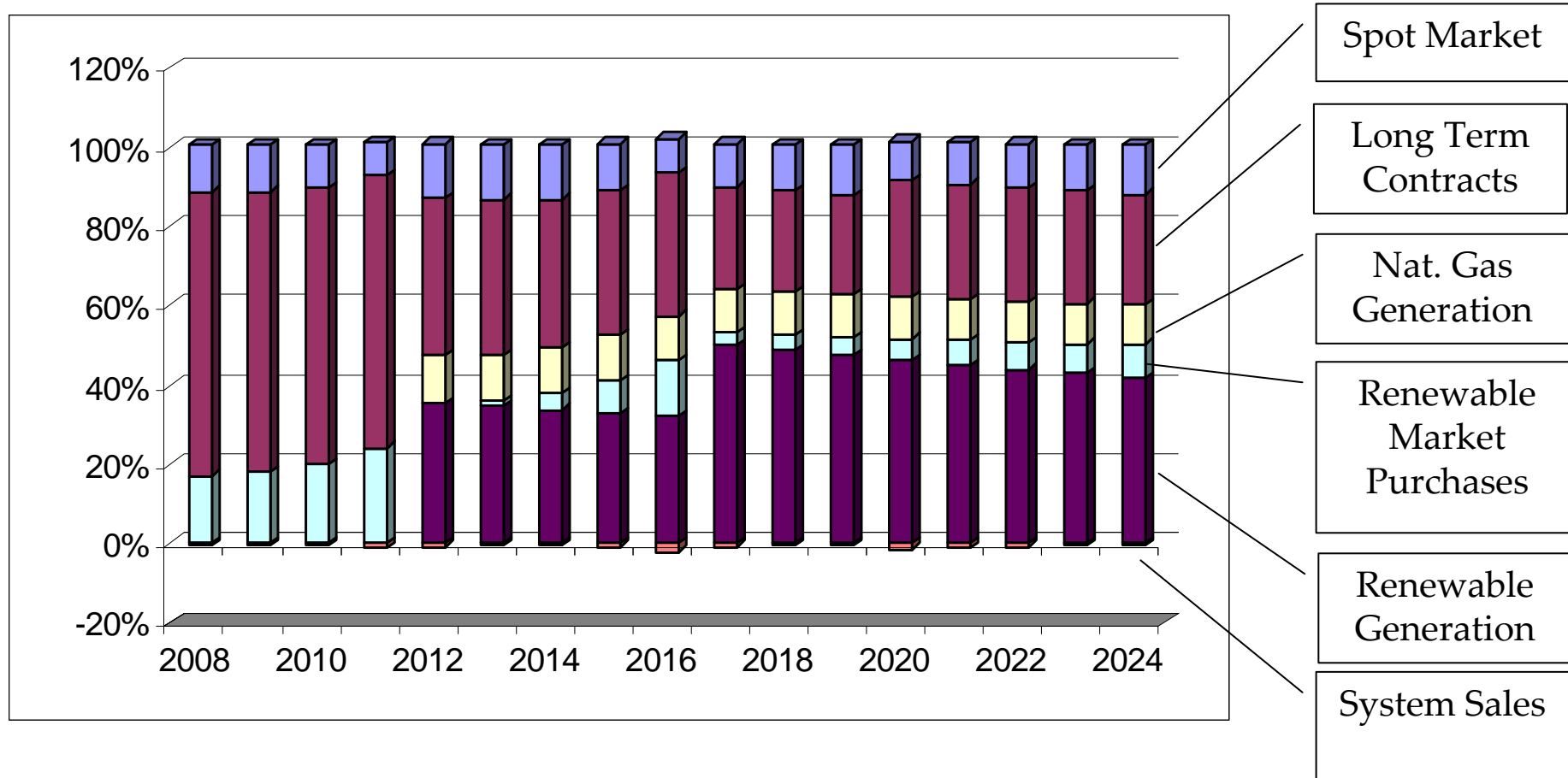


- **Expanded lead time for developing CCA resources from the three years assumed in the initial study to five years.**
 - Adjusted timing for program commencement and resource acquisition.
 - Initial power supply contract would cover 100% of supply for four-year term beginning in 2008.
- **Reflects increases in energy prices and expanded analysis of volatility in natural gas and electricity costs.**
 - Updated wholesale electricity and gas forward prices (now 7 to 8 cents per kWh, as opposed to the 5 to 6 cents per kWh used in the initial study).
- **Analysis of fluctuation in PG&E generation rates due to significant year-to-year variations in hydro-electric production.**
- **Other changes include updating analysis to reflect the January 2006 PG&E rates increases.**
 - 7.4% system increase, 11.1% for residential.
- **Residential billing data (baseline tiers) have not yet been reflected due to lack of data.**

Modeled Resource Mix for County CCA



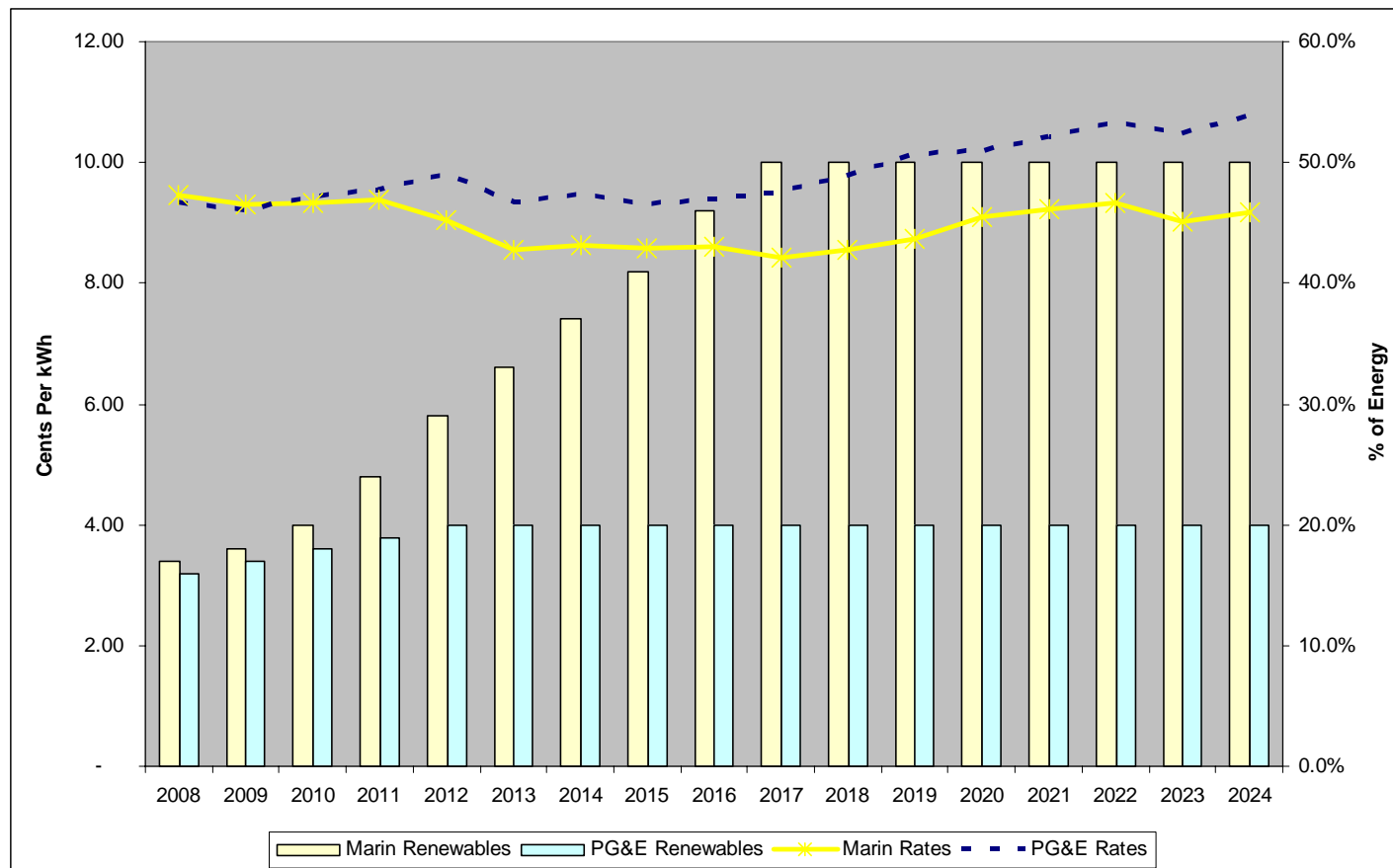
- Initially matches PG&E renewable content and achieves 51% by 2017.
- Long term contracts and assets minimize exposure to spot market prices.



Base Case Rate Projections vs. PG&E



- Very close to breakeven during initial period, stable over forecast period.
- Cost-based generation in 2012 reduces rates below PG&E.



Probability of Higher Rates – Simulation Methodology



- **NCI used Monte Carlo simulation technique to quantify the probability that program rates would be higher or lower than PG&E's.**
- **Methodology involves defining statistical distributions of key variables and then simulating thousands of potential outcomes.**
- **Provides ranges and probabilities of how program rates would compare to PG&E's.**
- **Key variables analyzed include:**
 - Wholesale electricity prices
 - Natural gas prices
 - Renewable energy costs
 - Customer opt-outs
 - Exit fees
 - PG&E hydro production (impacts PG&E rates)
 - PG&E rates by customer class

Questions Addressed by Analysis

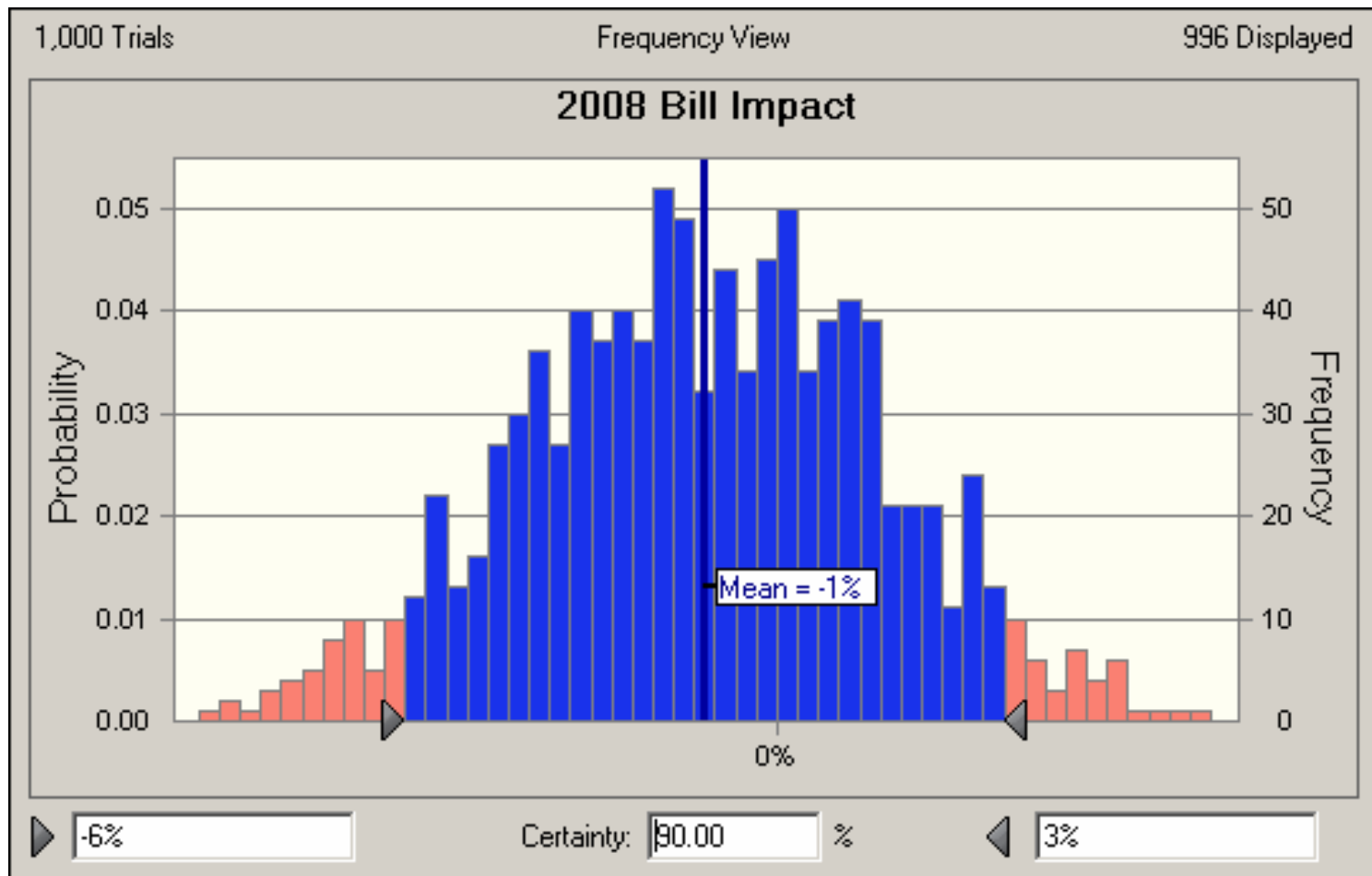


- **If program locks in supply costs through fixed price contracts at current prices, how likely is it that rates will be above those of PG&E and by how much?**
- **How do program rates compare to PG&E's in terms of rate stability?**
- **What is the probability that program rates will be lower than PG&E's over the long term?**
- **What is the probably cost to Marin ratepayers under a "business-as-usual" scenario, or not establishing a CCA?**

Program Rates In First Year are Likely to Range from 3% Lower to 6% Higher than PG&E Rate



- Base Case projection shows 1% higher rates in first year.

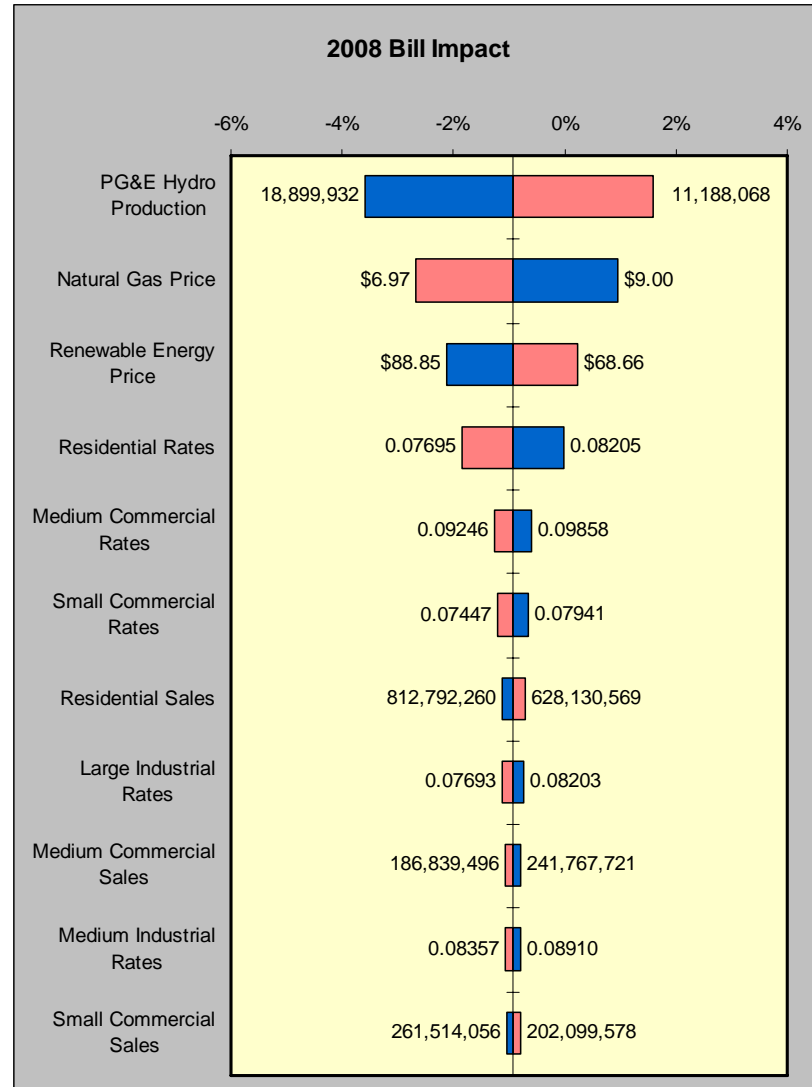


Variables With Greatest Impact on CCA Rates Relative To PG&E's



- Greatest single uncertainty is variability in PG&E rates – can range from 8.5 to 10.0 cents per kWh (generation).
- Wholesale energy costs and renewable energy costs are also important variables;
- Customer opt-out percentages are of less importance for Marin program.

Note: PG&E Hydro Production is in MWh per year.



Discussion of Key Uncertainties



PG&E Rates – The CCA program could largely stabilize its supply costs but PG&E rates may go up or down in any given year due to factors outside of the CCA’s control. These include regulatory decisions in general rate cases impacting PG&E’s authorized costs, new methodologies for how costs are allocated among customer classes, and variable hydro-electric conditions.

Renewable Energy Costs – Higher than anticipated renewable energy costs would have a larger impact on the CCA’s rates than PG&E’s due to the rapid ramp-up to the 51% goal.

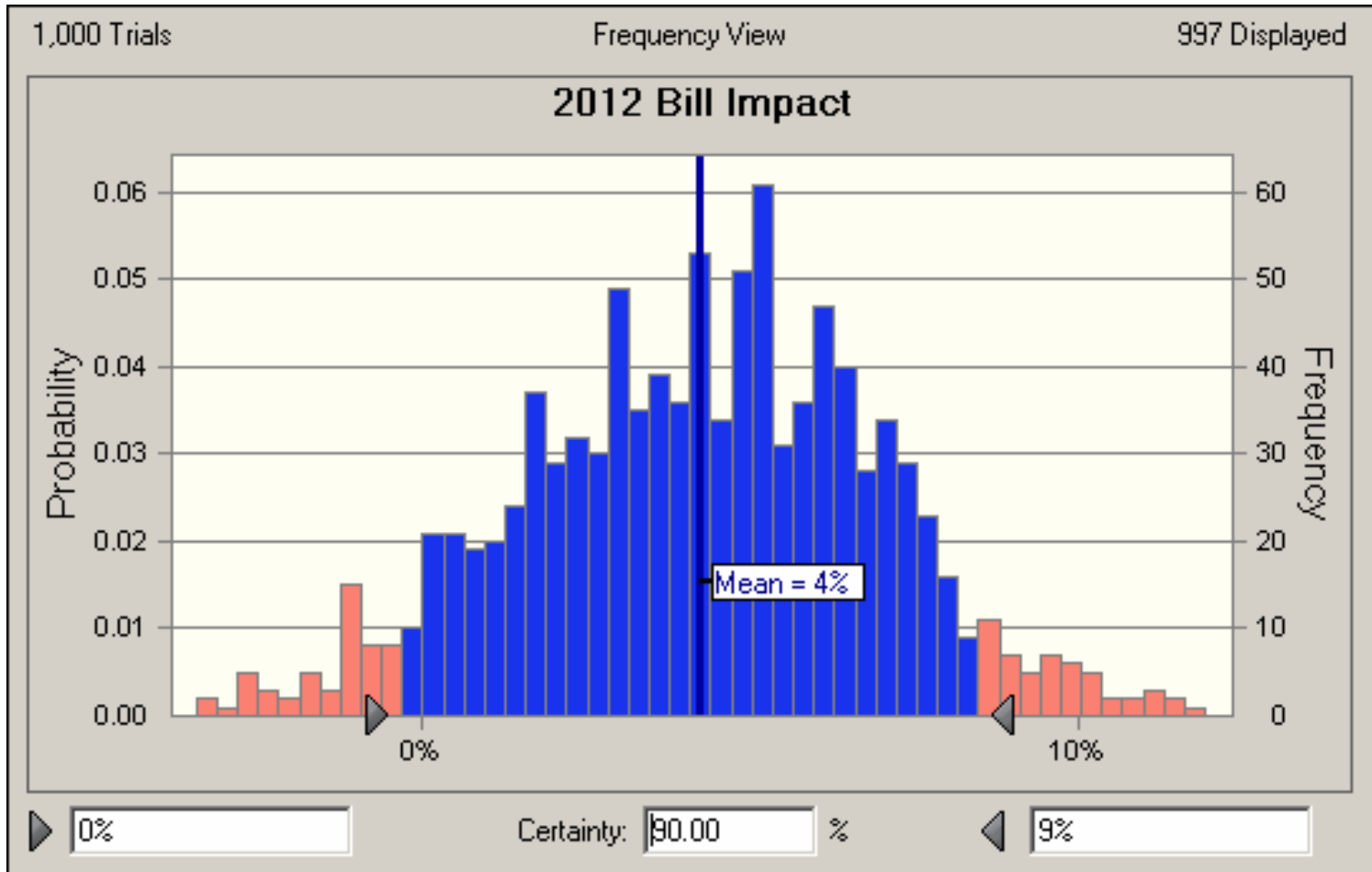
Natural Gas Costs -Higher than anticipated natural gas prices would increase PG&E resource costs that are tied to natural gas prices (e.g., some DWR contracts and QF contracts). The CCA’s costs are contractually fixed in this analysis.

Customer Opt-Outs – Greater opt-outs by residential and small commercial customers would help the program offer more competitive rates to participating customers because of the negative margins embedded in current PG&E residential rates. (This assumes the CCA matches PG&E rate designs.)

Program Rates In Fifth Year with CCA Generation are Likely to Range from 0% to 9% Lower than PG&E Rate



- Base Case projection shows 4% lower rates in fifth year.



Summary of Findings



- **Early year rates will likely be within +/- 5% of PG&E rates;**
- **Marin rates during initial period would be relatively stable, but not necessarily lower than PG&E's;**
- **Benefits of greater renewable energy and cost savings are likely in the long term – need strategies for managing the more challenging first three to four year period.**
- **Under a no-CCA scenario:**
 - Marin ratepayers will pay 5% more on average with PG&E through 2024
 - Cost to ratepayers is estimated to be \$240 million through 2024 and more than \$30 million per year thereafter
 - Based on the Monte Carlo analysis, the additional cost to ratepayers could run from a low of \$33 million to a high of \$442 million through 2024.

Tools For Managing Rates:

1. Phase-in



- **Offer service in phases, beginning with customers that can be served economically.**
 - Minimizes start-up costs related to marketing, notification, customer service and account management;
 - Minimizes operational risks, work through glitches;
 - Provides flexibility in resource procurement;
 - Creates rate stabilization fund to avoid higher rates in future.
- **Disadvantages include potential PG&E charges for “specialized services” and allegations of “cherry picking”.**

Tools For Managing Rates (Continued):

2. Green Pricing



- **Offer green pricing programs to enable customers to voluntarily pay somewhat higher rates for more renewable energy.**
 - Renewable energy has strong appeal to residential customer sector; some will voluntarily pay more for higher renewable content.
 - Business community tends to value rate reductions and/or rate stability.
 - Could offer 100% green energy to residential customers and 20% green energy to other customers as standard product, with opportunity to pay premium for more renewable energy.
 - Customers unwilling to pay small premium (\$2 to \$5 per month) can opt out of CCA program.

Tools For Managing Rates (Continued):

3. Structured Supply Contracts



- **Negotiate supply contract structures that shift future benefits to early years.**
 - Requires longer term deal with supplier so that near-term cost reduction can be recovered in future.
 - Implicit financing costs from supplier should be compared to self-financing, if available.
 - Could also structure supply contract to lock in prices but participate in market price declines; e.g., caps and collars.

Tools For Managing Rates (Continued):

4. Marketing Emphasis on Rate Stability



- **Promote value of rate stability in program marketing.**
 - Can offer customers a price that is fixed for three to five years, but may not always be lower than PG&E rate.
 - De-emphasizes comparison to PG&E rates.
 - Rate design and product differences may make direct rate comparisons less meaningful anyway.
 - Benefits could vary among customers depending upon how they use electricity
 - Aggressive energy efficiency programs could reduce bills rather than rates

“Business-As-Usual” or no CCA Scenario



- **Marin ratepayers would pay generation rates nearly 10% higher than necessary (equaling 5% higher on the total bill);**
- **Cost ratepayers an estimated \$240 million through 2024 and more than \$30 million per year thereafter;**
- **Permit an additional 230,000 tons of CO₂ to be emitted per year;**
- **No opportunity for customer choice other than the status quo dependency on PG&E.**

Annual Costs of No-CCA (\$ Millions)



- Status quo costs are very likely to be higher over the long term.
- Estimated cost of inaction is \$240 million over forecast period (2008-2024).
- Costs could run from a low of \$33 million to a high of \$440 million.

Year	Minimum	Expected	Maximum
2008	(10.8)	(1.9)	7.7
2009	(10.0)	(1.4)	6.8
2010	(10.3)	1.7	12.9
2011	(8.7)	2.5	14.9
2012	(2.1)	11.5	21.0
2013	2.6	12.1	21.4
2014	2.7	13.0	23.5
2015	1.9	11.7	22.2
2016	2.0	12.2	23.6
2017	6.9	18.0	29.7
2018	8.8	20.1	31.7
2019	11.2	23.3	36.3
2020	3.1	18.7	32.1
2021	6.7	20.8	34.4
2022	7.5	23.3	38.0
2023	10.6	26.0	40.8
2024	11.1	28.6	44.9
Total	33.2	240.2	441.9

Customer Risks In Context



How do ratepayer risks translate into monthly bill impacts for customers within Marin County?

- A 3% rate impact would equate to \$2 per month for the typical Marin household and \$1,850 per month for a large industrial customer.

- If commercial and industrial customers were kept at parity with PG&E, rate impact would be \$4 per month for typical Marin household.

Customer Class	Customers	\$/Month
Residential	110,000	\$ 2
Small Commercial	13,000	\$ 7
Medium Commercial	1200	\$ 66
Medium Industrial	200	\$ 165
Industrial	25	\$ 1,851

Customer Class	Customers	\$/Month
Residential	110,000	\$ 4
Small Commercial	13,000	\$ -
Medium Commercial	1200	\$ -
Medium Industrial	200	\$ -
Industrial	25	\$ -

Cost is less than many green power programs offered by utilities.

Risk of Delay in Establishing a CCA



- **Absent progress by County on CCA, PG&E will continue to make long-term supply commitments for Marin customers, which are subject to inclusion in PG&E's CCA exit fee.**
- **PG&E's recently announced procurement of \$1.5 billion in new generation could cost Marin County up to \$25 million in exit fee exposure.**
- **More long-term supply solicitations will be occurring over the next few years.**
- **As competition for available renewable resources heats up, latecomers will be left with fewer opportunities.**
- **Without CCA revenues, Marin County will not be at the table as key regulatory decisions are being made (e.g., RPS, local resource adequacy, long-term procurement).**